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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/780,013	02/17/2004	Joseph M. Steiner JR.	59.0053	9576

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EXAMINER

WONG, ALBERT KANG

ART UNIT	PAPER NUMBER
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2612

SHORTENED STATUTORY PERIOD OF RESPONSE	NOTIFICATION DATE	DELIVERY MODE
3 MONTHS	02/16/2007	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Notice of this Office communication was sent electronically on the above-indicated "Notification Date" and has a shortened statutory period for reply of 3 MONTHS from 02/16/2007.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary

Application No.

10/780,013

Applicant(s)

STEINER ET AL.

Examiner

Albert K. Wong

Art Unit

2612

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 December 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) ✓
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

Art Unit: 2612

1. This Office action is in response to the amendment filed December 1, 2006. Claims 1-27 are pending. The amendment to the specification has been entered.
2. Applicant's arguments have been considered, but are not deemed persuasive. Using applicant's reasoning, one would place a tool string connected to a cable several thousand feet into the ground without determining if the cable has the capacity of handling the communication requirements. This is clearly contrary to ordinary practice. Communications systems are designed by engineers prior to use. In such a process, the system is modeled based on known assumptions and whenever possible the system is optimized. The Examiner supplies two definitions of engineering as an example. Wikipedia's definition of engineering, published November 30, 2003, includes a section pertaining to problem solving. A more complete definition of engineering is provided by Wikipedia in an edition published January 31, 2007. Although this is published at a later date, it is still considered relevant since the definition has not changed between the time of invention and the time of publishing of the definition. It is considered that one of ordinary skill in the art would be aware of engineering principles. Gardner teaches that the effect of temperature on the cable's signal carrying capacity is reduced based on frequency and temperature. Thus, an engineer would ordinarily compensate for temperature in the environment in designing the system. Further, Gardner, teaches the **optimization** of such a system when it is in the ground. This fine tuning is for the purpose of compensating for factors which are not readily known. Col. 4, lines 65-67 states: "the distortion is both variable and unknown so that it must be dealt with dynamically *where system parameters are not known in advance.*" Emphasis added. Conversely, where parameters are known they can be made part of the design. Gardner teaches that temperature negatively affects the transmission

Art Unit: 2612

capacity of a cable and that a downhole environment has a rising temperature. See Figure 5. Col. 7, lines 50-55 teaches that an acceptable signal loss is 60dB. Figure 4 shows the signal loss of various types of cables. These parameters show that one of ordinary skill in the art would be aware of various design parameter that would effect the cable. They also suggest that an engineer would take these factors into account when designing a communication system.

Finally, applicant's arguments imply that the steps of estimation and modeling are complex, exact processes. The claims recite no such requirement. Merely, recognizing that the signal carrying capacity is degraded by temperature and changing the cable carrying capacity from a base assumption by a design or safety factor would be sufficient to carry out the method recited in the claims. To permit applicant to patent the instant claims would amount to a prohibition on practicing the steps of engineering design as it pertains to a downhole logging system any modification of a system to accommodate for a known factor would be proscribed by a patent with the instant method claims. Clearly, applicant is not the first person to invent the process of engineering design.

Therefore, the prior rejection has be repeated with minor modifications to clarify the points made above. The substance of the rejection is not changed.

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 2612

4. Claims 1-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gardner 5,387,907 in view of Humboldt WO 01/49001.

Regarding claim 1, Gardner teaches in col. 7 and figures 4-6 the determination of operating characteristics of a wireline cable at the surface and the effect of temperature on the operating characteristics of the cable. It is well known that temperature affects the operating characteristic of the cable. Gardner teaches the estimation of the data rate of the cable and determining the optimum frequency. Gardner does not teach the estimation of the data rate requirements of a tool string. Since the wireline is to be used with a sonde (essentially a tool string), it would have been obvious to estimate the data rate requirements so that the tool string may operate within the parameters of the cable. Gardner does not teach the modification of the tool string of the data rate of the cable does not match the downhole rate of the cable. Humboldt teaches a tool string communicating with a cable. Once the downhole rate of the cable has been determined, the tool string is altered so that the data rate does not exceed the rate of the cable. One of ordinary skill in the art at the time of the invention is presumed to have the knowledge and skills of an engineer. An engineer uses his knowledge of science to find solutions to problems by creating prototypes, designing modes based on scientific knowledge and including a factor of safety to reduce the risk of unexpected failure, and testing such models. It would have been obvious to adjust the tool string at the surface to ensure proper operation down hole when the system does not permit adjustment within the downhole environment. Further, it would have been obvious to estimate the change in transmission on a wire when there is knowledge that temperature has an effect on the transmission characteristics of the wire.

Art Unit: 2612

Regarding claims 2-4, figures 4-6 are graphs depicting the operating characteristics of a wireline cable. It would have been obvious that such values are determined by measurements, either above ground or within the hole.

Regarding claim 5, Humboldt teaches the determination of the SNR of the cable downhole. It would have been obvious to perform the same determination at the surface to prevent a defective cable from being used.

Regarding claim 6, as shown in Figure 5 of Gardner, the temperature negatively affects the operating characteristic. It would have been obvious to use a linear temperature gradient assumption since the temperature rises with depth and a linear model is the simplest estimate for calculation.

Regarding claims 7-8, the modeling characteristic chosen would be dependent on the depth of the well as well as the measured temperature changes in the well. Thus, the use of a two-part gradient assumption would be obvious if there is an abrupt change in temperature at a certain depth. It would have been obvious to create a model that approximates the downhole temperature characteristics.

Regarding claim 9, it would have been obvious to use actual measured temperature values to gain a more accurate estimate since downhole temperature values are not easily predicted.

Regarding claims 10-11, it would have been obvious to add or subtract tools to reduce or increase data based on the wireline cable capacity. More tools generate more data and thus, require greater bandwidth.

Art Unit: 2612

Regarding claim 12, the claimed analyzer and modeler are merely automated tools for performing the determination step recited in the method claims. It would have been obvious to create specialized tools to eliminate human operator error. Automated testing tools are found in virtually all testing environments where a test must be performed frequently. This saves the time and expense of setting up the test each time it is required.

Regarding claims 13-20, as stated above, the performance of the various steps would have been obvious. Similarly, it would have been obvious to automate the steps to eliminate the human operator errors.

Regarding claims 21-27, these claims recite the software for the automated modeler. It would have been obvious to use a computer to perform the modeling functions and thus, it would have been obvious to use software to control the computer since that is conventional.

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Art Unit: 2612

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Albert K. Wong whose telephone number is 571-272-3057. The examiner can normally be reached on M-Th.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wendy Garber can be reached on 571-272-7308. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Albert K. Wong
February 9, 2007



ALBERT K. WONG
PRIMARY EXAMINER